

Message

From: [REDACTED]
Sent: 4/30/2019 3:58:08 PM
To: Strynar, Mark [Strynar.Mark@epa.gov]
Subject: RE: PFAS Discussion

Mark,

Thanks for the information and the PowerPoint presentation on this topic. Recently, we traveled to New Jersey and found out about this project/research with NJDEP. Am going to read through all the information that you presented and look forward to the additional information/data that is going to come out in the near future. Thanks for all your assistance and will be sure to stay in contact.

[REDACTED]

[REDACTED]

Environmental Scientist

[REDACTED]

USEPA

William Jefferson Clinton South Building

OECA - OCE - WED [REDACTED]

[REDACTED] - MC 2243A

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From: Strynar, Mark
Sent: Tuesday, April 30, 2019 11:21 AM
To: [REDACTED]
Subject: RE: PFAS Discussion

Hi [REDACTED]

We have been working on a project with the NJDEP around a [REDACTED] of NJ right across the Delaware river from [REDACTED]. At that plant they used to use a product [REDACTED]

[REDACTED] NJ noted a PFNA issue in their local drinking water supplies near by. We have since done some no-targeted screening of water (in my lab) and soil/plants (John Washington's lab in Athens GA) and have discovered among other things a series of chloro perfluoro ether carboxylic acids you refer to. [REDACTED] (Dupont/Chemours) rather [REDACTED]

They were previously discussed in a paper by Wang et al., 2015. I presented some of this work at ACS back in late March. See the attached slides. I am glad to talk more on this. We are in the final stages of submitting this data to NJDEP on this topic so it is hot off the press.

See slides 24 – 32 for our work with NJ DEP. Slide 29 and 31 show the chemicals you are referring to.

Mark

From: [REDACTED]
Sent: Tuesday, April 30, 2019 9:33 AM
To: Strynar, Mark <Strynar.Mark@epa.gov>
Subject: RE: PFAS Discussion

Mark,

Just wanted to send a quick email to ask a question about a chemical that I was just informed about in regards

[REDACTED]
this chemical that is manufactured [REDACTED]. Your assistance is greatly appreciated. Any problems or concerns, please feel free to contact me.

[REDACTED]
[REDACTED]
Environmental Scientist
[REDACTED]

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 Please consider the environment before printing this email

From: Strynar, Mark

Sent: Wednesday, March 27, 2019 12:03 PM

To: Speir, Jeffrey <speir.jeffrey@epa.gov>; Collins, Charlie <collins.charlie@epa.gov>; Pollins, Mark <Pollins.Mark@epa.gov>; Theis, Joseph <Theis.Joseph@epa.gov>; Denton, Loren <Denton.Loren@epa.gov>; Bahk, Benjamin <Bahk.Benjamin@epa.gov>; Vinch, James <Vinch.James@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; McCord, James <mccord.james@epa.gov>

Subject: RE: PFAS Discussion

A couple of points

Slide 34 and slide 43

[REDACTED] with outfall (See Nakayama Table 3 below. Location 5 is the Dupont/Chemours outfall 001.

Second in Strynar et al., 2015 supporting information (see attached) and Figures S2 and S3 below. Clearly [REDACTED] to the river in a major way. Now that the outfall does not contain the waste stream this is curtailed, but is not stopped. These are still major players in the hillside seeps, and any GW recharge to the river. This is even supported by the spill document that shows [REDACTED] high in concentration (see below for the 9-18-18 spill response).

I am glad to chat if this is not clear.

Mark

PFAS in Cape Fear River PFOA, PFOS, etc.,

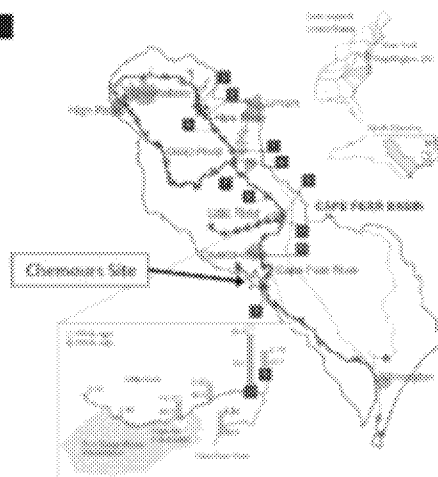
Environ. Sci. Technol. 2007, 41, 5271–5276

Perfluorinated Compounds in the Cape Fear Drainage Basin in North Carolina

SHOJI NAKAYAMA, MARK J. STRYNAR,
LAURENCE HELFANT, PETER EGEGHY,
XIBIAO YE, AND
ANDREW B. LINDSTROM*

National Exposure Research Laboratory, U.S. Environmental
Protection Agency, Research Triangle Park,
North Carolina 27711

- PFAS are present throughout
Cape Fear Watershed



38
31 Jan 2010

PW000079

Primary Local Sampling Program Observations

- PFCAs and PFSAAs are not related to Site
- HFPO-DA, PFECAs and PFESAs
 - Present only after Site; are related to the Site
- HFPO-DA remains below health goal of 140 ng/L
- Actions taken and underway by Chemours have reduced and will continue to reduce Cape Fear River HFPO-DA, PFECA and PFESA concentrations



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31 Jan 2010

PW000079

Nakayama et al., 22007

TABLE 3. Measured Concentrations at the Eleven Sites with the Highest Total Concentrations of PFCs in the Cape Fear River Basin^a (See Figure 1 for locations)

no.	river	C12 (ng/L)	C11 (ng/L)	C10 (ng/L)	C9 (ng/L)	C8 (ng/L)	C7 (ng/L)	C6 (ng/L)	PFOS (ng/L)	PFHS (ng/L)	PFBS (ng/L)	total (ng/L)
1	Haw River	<i>4.46</i>	<i>52.1</i>	<i>120</i>	<i>194</i>	<i>287</i>	118	21.7	127	8.43	<i>9.41</i>	942
2	Haw River	3.20	28.7	112	157	200	66.8	14.5	33.4	7.87	2.61	626
3	Haw River	3.29	27.6	109	157	191	59.2	13.7	36.4	9.49	3.04	609
4	Haw River	1.98	20.0	88.2	151	201	58.2	13.2	31.5	7.49	2.88	574
5	tributary to Cape Fear	2.26	15.0	19.6	71.2	58.6	<i>329</i>	<i>23.0</i>	30.0	3.36	ND	531
6	Haw River	1.18	8.87	31.0	72.1	152	58.3	13.5	31.2	7.70	ND	376
7	Cape Fear River	< LOQ	3.34	13.2	34.8	70.3	24.0	7.84	66.7	5.59	ND	227
8	Cape Fear River	1.14	6.39	17.2	35.7	71.5	26.9	9.35	50.4	4.82	ND	223
9	Cape Fear River	1.23	6.75	17.1	38.0	72.7	23.7	7.05	40.7	4.10	ND	211
10	Cape Fear River	< LOQ	7.55	19.3	31.2	46.8	13.9	4.62	56.3	6.84	2.12	189
11	Little River	< LOQ	< LOQ	2.17	2.24	12.6	3.38	3.23	<i>132</i>	<i>26.4</i>	3.20	185

^a Italicized values show maximal concentrations of each compound.

5274 • ENVIRONMENTAL SCIENCE & TECHNOLOGY / VOL. 41, NO. 15, 2007

Strynar et al., 2015

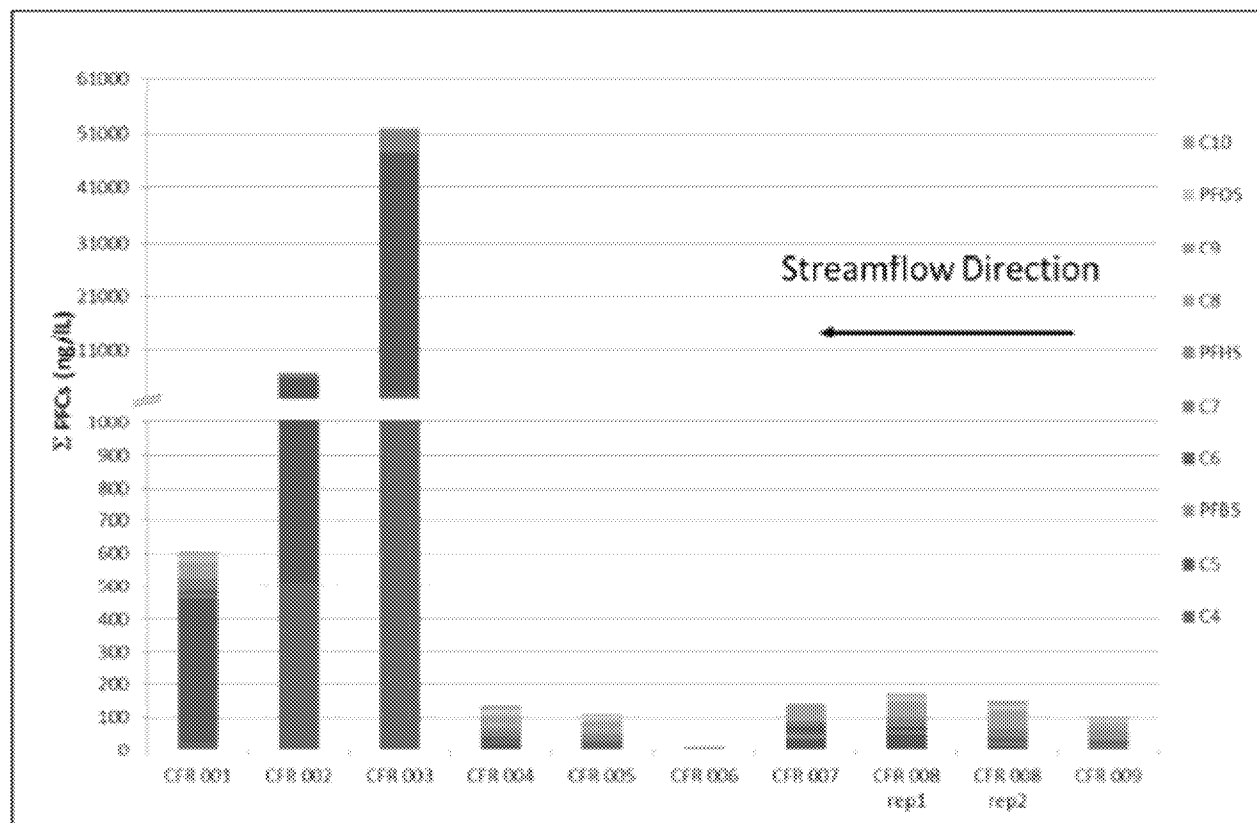
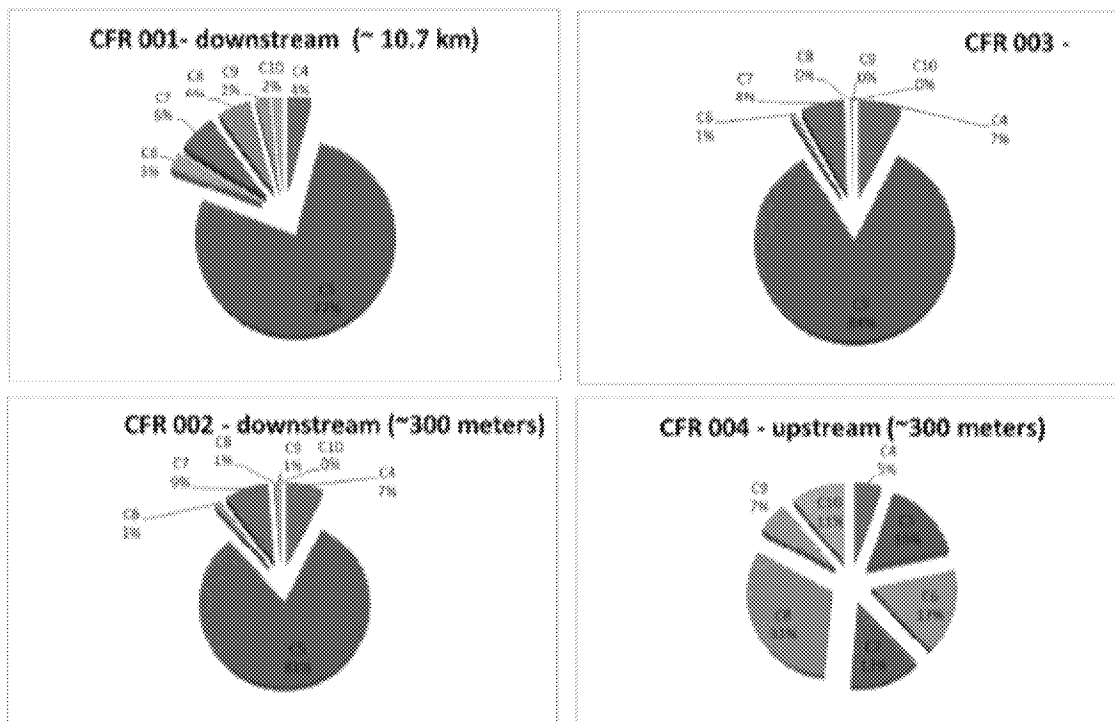


Figure S2. PFAAs found in water samples from the Cape Fear River. Note the y-axis is a split scale.



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50 Figure S3. Proportion of PFAAs contribution to the total for select water samples from the Cape
51 Fear River.

Spill investigation 9-18-18 PFBA and PFPeA still 10k to 100k ng/L, though less than other Chemours based PFECAs and PFESAs as shown here.

Investigation of liquid spilled from a truck transporting material for Chemours on 9/18/18.

Soil and water samples were collected by a citizen, the waste disposal facility, and staff from EPA and DEQ. Samples were analyzed by GEL and EPA Region 5 Laboratories for Gel

Sample Description		Citizen water sample from puddle/ditch	Citizen water sample from road surface	Waste disposal facility water sample from truck tank
Sample Name		F20 - Register Ave	F20 - Tobemory Rd	F20-#2
Sample Collection Date		9/18/2018		9/20/2018
PFAS Chemical Name	CASN	ng/L	ng/L	ng/L
Perfluoro-2-methyl-3-oxahexanoic acid (PFPrOPrA, "GenX")	13252-13-6	2,390,000	2,850,000	2,870,000
Perfluoro-2-methoxy-acetic acid (PFMOAA)	674-19-5	172,000	218,000	206,000
Perfluoro-3-methoxy-propanoic acid (PFMOPrA)	377-73-1	3,910,000	4,580,000	4,500,000
Perfluoro-4-methoxy-butyric acid (PFMOBA)	863090-89-5	2,250,000	3,430,000	2,740,000
Perfluoro-(3,5-dioxahexanoic) acid (PFO2HxA)	39492-88-1	197,000	355,000	338,000
Perfluoro-(3,5,7-trioxaoctanoic) acid (PFO3OA)	39492-89-2	477,000	509,000	504,000
Perfluoro-(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	39492-90-5	459,000	412,000	399,000
Nafion Byproduct 1	29311-67-9	480,000	418,000	765,000
Nafion Byproduct 2	749836-20-2	25,400	20,700	35,600
Perfluoro-butane-sulfonic acid (PFBS)	375-73-5	-	-	-
Perfluoro-butyric acid (PFBA)	375-22-4	75,800	92,200	90,400
Perfluoro-pentane-sulfonic acid (PFPeS)	2706-91-4	-	-	-
Perfluoro-pentanoic acid (PFPeA)	2706-90-3	27,700	32,900	32,900

From: [REDACTED]
Sent: Wednesday, March 27, 2019 10:58 AM
To: Strynar, Mark <Strynar.Mark@epa.gov>; [REDACTED]

<Lindstrom.Andrew@epa.gov>; McCord, James <mccord.james@epa.gov>
Subject: RE: PFAS Discussion

Enforcement Confidential / Do Not Release

Thank you, Mark. It was great to connect and learn from you this morning, and I look forward to future fruitful discussions.

As mentioned on the call, I am attaching:

- The Conceptual Site Model for Fayetteville Works (FW003040); and
- A table showing concentrations of PFAS in wastewater spilled from a truck a few miles from Fayetteville Works—presumably en route to Texas.

[REDACTED] Attorney-Adviser
U.S. Environmental Protection Agency
OECA – OCE – Water Enforcement Division
(202) 564-[REDACTED]

From: Strynar, Mark
Sent: Wednesday, March 27, 2019 10:20 AM
To: [REDACTED]

[REDACTED] Lindstrom, Andrew
<Lindstrom.Andrew@epa.gov>; McCord, James <mccord.james@epa.gov>
Subject: RE: PFAS Discussion

All,

It was great to have this discussion with you. I am sending two things to help you in your investigation:

1) A poster made by me of the chemical names and CAS and structures of what we know based on my synthesis of discussions and our findings. IT is NOT all inclusive but includes many of the PFAS we know and track. I have also shared this with NC DEQ and NC DAQ in the past.

2) [REDACTED] not yet final and is embargoed right now. As soon as it is public I will share with Chemours colleagues.

Please feel free to call or visit anytime for follow up discussions and meetings. We will work out the details. Andy will follow with a list of who can go on the site visit next week.

Mark

-----Original Appointment-----

From: [REDACTED]
Sent: Tuesday, March 26, 2019 3:16 PM
To: [REDACTED] Andrew;
Strynar, Mark; McCord, James

Subject: PFAS Discussion

When: Wednesday, March 27, 2019 9:00 AM-10:00 AM (UTC-05:00) Eastern Time (US & Canada).

Where: Teleconference

Agenda:

- I. Inspection of [REDACTED]
- II. Discussion on [REDACTED]
- III. Discussion of [REDACTED]

Anticipated Call Participants:

- EPA ORD RTP
- Mark Strynar, Andrew Lindstrom and James McCord
- EPA Office of Enforcement & Compliance Assurance

Call-in information:

Ex. 6 Personal Privacy (PP)

Conference ID:

Ex. 6 Personal Privacy (PP)